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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,314	08/19/2003	Rasappa G. Arumugham	ACY33317-D1	3547

25291 7590 05/03/2005

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EXAMINER	
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ART UNIT	PAPER NUMBER
1645	

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/643,314	ARUMUGHAM ET AL.	
	Examiner	Art Unit	
	S. Devi, Ph.D.	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/16/04 & 09/16/04*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *20-36* is/are pending in the application.

4a) Of the above claim(s) *26-36* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *20-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

RESPONSE TO APPLICANTS' AMENDMENT

Applicants' Amendment

1) Acknowledgment is made of Applicants' amendment filed 09/16/04 in response to the non-final Office Action mailed 06/24/04. With this, Applicants have amended the specification.

Status of Claims

2) Claims 14-19 have been canceled via the amendment filed 09/16/04.

Claims 20-23 have been amended via the amendment filed 09/16/04.

New claims 24-36 have been added via the amendment filed 09/16/04.

Claims 20-36 are pending.

New claims 26-36 are withdrawn from consideration as being directed to a non-elected species. See 37 C.F.R 1.142(b) and M.P.E.P § 821.03.

Claims 20-25 are under examination.

Prior Citation of Title 35 Sections

3) The text of those sections of Title 35 U.S. Code not included in this action can be found in a prior Office Action.

Prior Citation of References

4) The references cited or used as prior art in support of one or more rejections in the instant Office Action and not included on an attached form PTO-892 or form PTO-1449 have been previously cited and made of record.

Terminal Disclaimer

5) Acknowledgment is made of Applicants' terminal disclaimer filed 09/16/04 disclaiming the terminal portion of any patent granted on this application, which would extend beyond the expiration date of US Patent 6,645,503.

Objection(s) Withdrawn

6) The objection to the specification made in paragraph 6 of the Office Action mailed 06/24/04 is withdrawn in light of Applicants' amendment to the specification.

Rejection(s) Moot

7) The rejection of claim 19 made in paragraph 8 of the Office Action mailed 06/24/04 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of Arumugham *et al.* (US 6,645,503) ('503), is moot in light of Applicants' cancellation of the claim.

8) The rejection of claim 19 made in paragraph 10 of the Office Action mailed 06/24/04 under 35 U.S.C. § 101 as being directed to a non-statutory subject matter, is moot in light of Applicants' cancellation of the claim.

9) The rejection of claim 19 made in paragraph 11 of the Office Action mailed 06/29/04 under 35 U.S.C. § 112, first paragraph, as containing new matter, is moot in light of Applicants' cancellation of the claim.

10) The rejection of claim 19 made in paragraph 12 of the Office Action mailed 06/24/04 under 35 U.S.C. § 112, first paragraph, as containing non-enabling disclosure, is moot in light of Applicants' cancellation of the claim.

11) The rejection of claim 19 made in paragraph 14(a) of the Office Action mailed 06/24/04 under 35 U.S.C. § 112, second paragraph, as being indefinite, is moot in light of Applicants' cancellation of the claim.

Rejection(s) Withdrawn

12) The rejection of claims 20-23 made in paragraph 8 of the Office Action mailed 06/24/04 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of Arumugham *et al.* (US 6,645,503) ('503) is withdrawn in light of Applicants submission of a terminal disclaimer disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent 6,645,503.

13) The rejection of claims 20-23 in paragraph 11 of the Office Action mailed 06/24/04 under 35 U.S.C. § 112, first paragraph, as containing new matter, is withdrawn in light of Applicants' amendment to the claims.

14) The rejection of claim 21 made in paragraph 14(b) of the Office Action mailed 06/24/04

under 35 U.S.C. § 112, second paragraph, as being indefinite, is withdrawn in light of Applicants' amendment to the claim.

15) The rejection of claim 23 made in paragraph 14(c) of the Office Action mailed 06/24/04 under 35 U.S.C. § 112, second paragraph, as being indefinite, is withdrawn in light of Applicants' amendment to the claim.

16) The rejection of claims 20-23 made in paragraph 14(d) of the Office Action mailed 06/24/04 under 35 U.S.C. § 112, second paragraph, as being indefinite, is withdrawn in light of Applicants' amendment to the base claim.

17) The rejection of claims 20-23 made in paragraph 12 of the Office Action mailed 06/24/04 under 35 U.S.C. § 112, first paragraph, as containing non-enabling disclosure, is withdrawn in light of Applicants' amendment to the claims and/or the base claim(s).

Response to Applicants' Arguments

18) With regard to the lack of enablement rejection under 35 U.S.C. § 112, first paragraph, Applicants point to various parts of the specification and submit that the specification demonstrates the cross-reactivity of the antisera from a conjugate comprising the conserved LPS portion from *Neisseria meningitidis* with LPS from heterologous strains of *Neisseria meningitidis* strains A1, H44/76, 2996 and immunotypes L1-L12; and bactericidal activity against heterologous *Neisseria meningitidis* group A strains and group B strains. Applicants contend that the specification demonstrates that antisera against the meningococcal LPS conjugate is cross reactive with the LPS from various genera of Gram negative bacteria, such as, *Haemophilus influenzae, Neisseria gonorrhoeae, Helicobacter pylori* and *Moraxella catarrhalis*. Applicants reiterate that Figures 1A, 2A, 2B and 3B of the specification teach the conserved inner core structure of the LPS molecules from *Salmonella, Neisseria* and *Haemophilus*. Applicants state that the teachings and experimental data of the present invention demonstrate that the conserved portion, i.e., the inner portion: GlcNAc-Hep2-phosphoethanolamine-KDO_2-LipidA, elicits a cross reactive immune response against heterologous strains of *Neisseria meningitidis;* a different species of *Neisseria gonorrhoeae;* and Gram negative bacteria, such as, *Haemophilus, Moraxella, Salmonella* and *Helicobacter*. Applicants assert that the structural

differences in the LPS molecules occur in the outer core portion of the LPS, and not in the conserved (inner core) LPS portion. Applicants submit the reference of Plested *et al.* (*Infect. Immun.* 67: 5417-5426, 1999) pertaining to *Neisseria meningitidis* and state that the reference teaches of the 'relatively highly conserved inner core of the LPS' despite the extensive phase variation of the outer core LPS structures. Applicants state that John *et al.* (*J. Biol. Chem.* 266: 19303-19311, 1991, already of record) describe the structural characterization of LPS from *Neisseria gonorrhoeae* strain 1291. Applicants conclude that the specification enables one of skill in the art to make and use the claimed conjugates comprising isolated LPS from *Neisseria, Haemophilus* and *Salmonella* without undue experimentation.

Applicants' arguments have been carefully considered, but are not persuasive. Applicants are correct in that the specification demonstrates the cross-reactivity of the antisera from a conjugate comprising the conserved LPS portion from *Neisseria meningitidis* with LPS from heterologous strains of *Neisseria meningitidis* strains A1, H44/76, 2996 and immunotypes L1-L12; and bactericidal activity against heterologous *Neisseria meningitidis* group A strains and group B strains. However, it is important to note that what is being claimed in the elected claims is an antigenic conjugate comprising a covalently bonded conserved portion of an isolated LPS from '*Neisseria gonorrhoeae*', wherein the conserved portion of the LPS is *required* to comprise GlcNAc-Hep_2-phosphoethanolamine-KDO_2-LipidA, wherein the conjugate elicits a cross reactive immune response against heterologous strains of *Neisseria gonorrhoeae* or *Neisseria meningitidis,* and against one or more bacteria selected from the group consisting of *Haemophilus influenzae, nonptypeable Haemophilus influenzae, Haemophilus ducreyi, Helicobacter pylori, Salmonella typhimurium, Salmonella minnesota,* and *Moraxella catarrhalis.* The reference of Plested *et al.* is relevant to *Neisseria meningitidis* LPS, but not to *Neisseria gonorrhoeae* LPS.

With regard to Applicants' remarks on the teachings of John *et al.*, it is noted that John *et al.* (*J. Biol. Chem.* 266: 19303-19311, 1991, already of record) taught the structural basis for pyocin resistance in lipooligosaccharides of *Neisseria gonorrhoeae.* John *et al.* taught that: (a) gonococcal LOS are considerably heterogeneous and difficult to characterize; (b) each gonococcal strain expresses from two to six different LOSs; (c) the structure of gonococcal lipid

A is highly conserved; (d) the common core structure of one particular strain, 1291, of *Neisseria gonorrhoeae* has the structure of GlcNAc1->2Hep1->3Hep1-> that must be linked to KDO. This structure containing a KDO does not appear to be the same as the structure recited in the base claim 24, GlcNAc-Hep2-phosphoethanolamine-KDO_2-LipidA. Additionally, Kerwood *et al.* (*Biochemistry* 31: 12760-12768, 1992) and Yamasaki *et al.* (*Biochemistry* 30: 10566-10575, 1991) have also disclosed a structure for the gonococcal LOS wherein the structure comprises KDO as opposed to KDO_2. See abstract; sentence bridging pages 12764 and 12765; and Figure 2A of Kerwood *et al.* and abstract and the formula on page 10573 of Yamasaki *et al.* Thus, the state of the art indicates a structure for gonococcal LOS that contains a KDO as opposed to KDO_2. There is no evidence that antigenic conjugates of the conserved structure of gonococcal origin, GlcNAc-Hep2-phosphoethanolamine-KDO_2-LipidA, were produced and evaluated for cross-reactivity against even a single heterologous strain of *Neisseria gonorrhoeae* or a single strain of *Neisseria meningitidis*, or against one or more bacteria selected from the group consisting of *Haemophilus influenzae, nonptypeable Haemophilus influenzae, Haemophilus ducreyi, Helicobacter pylori, Salmonella typhimurium, Salmonella minnesota,* and *Moraxella catarrhalis*. See paragraph 20 below.

New Rejection(s) Based on Applicants' Amendments

The new rejections set forth below are necessitated by Applicants' amendments to the claim(s) and submission of new claims.

Rejection(s) under 35 U.S.C. § 112, First Paragraph (New Matter)

19) Claims 24, 25 and claims dependent therefrom are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

New claim 24 includes the limitations: '(LPS) from *Neisseria gonorrhoeae*, wherein the conserved portion of the LPS comprises GlcNAc-Hep2-phosphoethanolamine-KDO_2-LipidA, wherein the conjugate elicits a cross reactive immune response against heterologous strains of *Neisseria meningitidis* or *Neisseria gonorrhoeae*'. Applicants point to the originally filed claims

and the specification, in particular to page 5, line 26 through page 6, line 2; Figures 1-3; and original claims 1-18 of the specification as providing descriptive support for the new claims 24, 26 and 31. However, these parts of the specification do not appear to describe a conserved portion of the LPS of *Neisseria gonorrhoeae*, wherein the conserved portion of the LPS comprises 'GlcNAc-Hep2-phosphoethanolamine-KDO_2-LipidA', and wherein the conjugate elicits a cross reactive immune response against heterologous strains of *Neisseria meningitidis* or *Neisseria gonorrhoeae,* or against one or more bacteria selected from the group consisting of *Haemophilus influenzae, nonptypeable Haemophilus influenzae, Haemophilus ducreyi, Helicobacter pylori, Salmonella typhimurium, Salmonella minnesota,* and *Moraxella catarrhalis.* While the limitation 'GlcNAc-Hep2-phosphoethanolamine-KDO_2-LipidA' is described in the first paragraph of page 15 and the last two paragraphs of page 8 of the instant specification, exclusively in connection with the LPS of *N. meningitidis,* there is no descriptive support for such a conserved structure being present in the LPS of *Neisseria gonorrhoeae*. Additionally, the limitation '*cholerae*' toxin in claim 21 is new matter. The limitation in the new claim 25: 'cross reactive immune response against *one or more* bacteria selected from .... *catarrhalis*' [Emphasis added] is also new matter. Therefore, the limitations in the claims are considered to be new matter. *In re Rasmussen*, 650 F2d 1212 (CCPA, 1981). New matter includes not only the addition of wholly unsupported subject matter but also, adding specific percentages or compounds after a broader original disclosure, or even omission of a step from a method. See M.P.E.P 608.04 to 608.04(c).

Applicants are respectfully requested to remove the new matter from the claim(s), or invited to point to specific pages and line numbers in the specification where support for such recitations can be found.

Rejection(s) under 35 U.S.C. § 112, First Paragraph

20) Claims 20-25 are rejected under 35 U.S.C § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. This is a lack of enablement rejection.

Instant claims are evaluated based on the *Wands* analysis. Many of the factors regarding undue experimentation have been summarized in *In re Wands*, 858 F.2d 731, 8 USPQ2d 1400 (Fed. Circ. 1988) as follows:

- The quantity of experimentation necessary (time and expense);
- The amount of direction or guidance presented;
- The presence or absence of working examples of the invention;
- The nature of the invention;
- The state of the art;
- The relative skill of those in the art;
- The predictability or unpredictability of the art; and
- The breadth of the claims.

In the instant application, the claimed antigenic conjugate comprises the conserved portion of an LPS of *Neisseria gonorrhoeae* which conserved portion is required to comprise the specific structure, GlcNAc-Hep2-phosphoethanolamine-KDO_2-LipidA. The claimed conjugate is further required to elicit a cross reactive immune response against heterologous strains of *Neisseria gonorrhoeae* or *Neisseria meningitidis,* or against one or more bacteria selected from the group consisting of *Haemophilus influenzae, nontypeable Haemophilus influenzae, Haemophilus ducreyi, Helicobacter pylori, Salmonella typhimurium, Salmonella minnesota,* and *Moraxella catarrhalis.* The disclosure in the instant specification at first paragraph on page 15 and the last two paragraphs on page 8 is limited to a *Neisseria meningitidis* LPS from the specific strain, NMB-96, which has the structure identified as 'GlcNAc-Hep2-phosphoethanolamine-KDO_2-LipidA'. This specific meningococcal LPS having the specific chemical structure, when conjugated to a protein carrier, elicited LPS-specific antibodies that were cross reactive with LPS from some heterologous strains of *Neisseria meningitidis.* This does <u>not</u> constitute an enabling showing that strains of *Neisseria gonorrhoeae* contain an LPS having the specific conserved structure, GlcNAc-Hep2-phosphoethanolamine-KDO_2-LipidA, which on conjugation to a protein carrier, before or after de-O-acylation, elicits a 'cross reactive' immune response, cellular or humoral, against heterologous strains of *Neisseria gonorrhoeae* or *Neisseria meningitidis,* or against one or more bacteria selected from the group consisting of *Haemophilus influenzae, nonptypeable Haemophilus influenzae, Haemophilus ducreyi, Helicobacter pylori, Salmonella typhimurium, Salmonella minnesota,* and *Moraxella catarrhalis.* There is no evidence that antigenic conjugates of the conserved structure of

gonococcal origin, GlcNAc-Hep2-phosphoethanolamine-KDO_2-LipidA, were produced and evaluated for cross-reactivity against even a single heterologous strain of *Neisseria gonorrhoeae* or a single strain of *Neisseria meningitidis*, or against one or more bacteria selected from the group consisting of *Haemophilus influenzae, nonptypeable Haemophilus influenzae, Haemophilus ducreyi, Helicobacter pylori, Salmonella typhimurium, Salmonella minnesota,* and *Moraxella catarrhalis*.

The state of the art with respect to the development of a broadly cross-reactive gonococcal LPS-based immunogenic composition against Gram negative bacterial pathogens reflects several antigenic or epitopic complexities. As set forth previously, with regard to the LPS of the Gram negative bacterial species, *Neisseria,* or *N. gonorrhoeae* in particular, the state of the art documents structural heterogeneity or structural differences. See Lee *et al. Infect. Immun.* 63: 2508-2515, 1995; and John *et al. J. Biol. Chem.* 266: 19303-19311, 1991, both already of record. The state of the art further reflects the existence of intra- and inter-strain antigenic variations suggesting the gonococci's potential for reinfection and continued virulence. See lines 1-4 in column 2 of Rice *et al.*, US 6,099,839, published 8/8/2000 (already of record). Morse *et al.* (*J. Infect. Dis.* 145: 206-216, 1982) taught that the gonococcal LPS chemotype can mutate at a high frequency and that strains of gonococci can apparently produce more than one type of LPS (see sentence bridging left and right columns on page 215). Griffis *et al.* (*Rev. Infect. Dis.* 10: S284-S295, 1988) identified the differences in lipooligosaccharides that account for most of the observed physical heterogeneity, which is linked to epitope expression (see abstract). Griffis *et al.* taught that neisserial LOS expresses multiple epitopes (see page S291, right column). Rappuoli R (*Giorn. Batt. Virol. Immun.* LXXIV: 191-201, 1981) taught that gonococci contain more than one antigenically different lipopolysaccharides and that the difference between these diverse LPSs is located in the antigenic determinant of the **core** region (see summary). Rappuoli cited of Apicella and Gagliardi's reporting of the evidence for the occurrence of different core antigens in gonococcus (see page 192). With these art-reported antigenic complexity and heterogeneity, one would look into Applicants' specification for specific guidance and disclosure. There is no showing of a gonococcal LPS having a conserved portion comprising GlcNAc-Hep2-phosphoethanolamine-KDO_2-LipidA and eliciting a cross-reactive immune response against heterologous strains of *Neisseria gonorrhoeae* or *Neisseria meningitidis*, or against one or more bacteria selected from the group consisting of *Haemophilus*

influenzae, nontypeable Haemophilus influenzae, Haemophilus ducreyi, Helicobacter pylori, Salmonella typhimurium, Salmonella minnesota, and *Moraxella catarrhalis*. Thus, from the art-recognized heterogeneity and antigenic complexity of gonococcal LOSs disclosed in the above-identified references, it is reasonable to conclude that induction of 'cross reactive immune response' against heterologous strains of gonococci by a conjugate of an LPS of *Neisseria gonorrhoeae*, let alone any non-gonococcal Gram negative bacteria such as *Haemophilus influenzae, nonptypeable Haemophilus influenzae, Haemophilus ducreyi, Helicobacter pylori, Salmonella typhimurium, Salmonella minnesota* and *Moraxella catarrhalis,* cannot be predicted. Even if one induced antibodies to gonococcal LPS or LOS core, there is no predictability that the resultant antibodies elicited by one antigenic variant of a gonococcal LPS/LOS would recognize another antigenic variant of gonococcal LPS/LOS, let alone elicit cross reactive immune response against strains of any of the recited non-gonococcal Gram negative bacteria: *Haemophilus influenzae, nonptypeable Haemophilus influenzae, Haemophilus ducreyi, Helicobacter pylori, Salmonella typhimurium, Salmonella minnesota* and *Moraxella catarrhalis*. In view of the art-recognized existence of phenotypic heterogeneity and antigenic complexity among gonococci, the lack of adequate disclosure and specific guidance, the lack of working examples, the breadth of the claims, the unpredictability identified in the relevant field, and the quantity of experimentation necessary, undue experimentation would have been required to reproducibly practice the invention, as claimed.

Rejection(s) under 35 U.S.C. § 112, Second Paragraph

21) Claims 20-25 are rejected under 35 U.S.C § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter, which Applicants regard as the invention.

(a) Claim 21 is vague, indefinite and/or incorrect in the limitation '*cholerae* toxin' as opposed to --cholera toxin--.

(b) Claim 25 is improperly broadening in scope in the limitation: 'conjugate of claim 24, wherein the conjugate elicits a cross reactive immune response against one or more bacteria selected from the group consisting of *Haemophilus influenzae, nonptypeable Haemophilus influenzae, Haemophilus ducreyi, Helicobacter pylori, Salmonella typhimurium, Salmonella minnesota* and *Moraxella catarrhalis*'. Claim 25 depends from claim 24, wherein the cross reactive immune response elicited by the conjugate is limited to heterologous strains of *Neisseria*

meningitidis or *Neisseria gonorrhoeae.* The scope of the cross reactive immune response elicited by the conjugate in the dependent claim 25 extends to heterologous strains of bacteria other than *Neisseria meningitidis* or *Neisseria gonorrhoeae.*

(c) Claim 23 has improper antecedent basis in the limitation: 'the antigenic composition of claim 24', because claim 24 is not drawn to a 'composition'.

(d) Claims 20-23 and 25, which depend directly or indirectly from claim 24, are also rejected under 35 U.S.C. § 112, second paragraph, as being indefinite, because of the indefiniteness or vagueness, identified above in the base claim.

Rejection(s) under 35 U.S.C. § 102

22) The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> **(b)** the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

23) Claims 23-25 are rejected under § 102(b) as being anticipated by Rodahl *et al.* (*Acta Path. Microbiol. Immunol. Scand.* Section B 91: 285-289, 1983).

Rodahl *et al.* taught an immunogenic conjugate of a purified gonococcal LPS covalently linked to the protein carrier, bovine serum albumin. A composition comprising the conjugate elicited antibodies which reacted with whole gonococcal cells. The various gonococcal strains that were used in the study included strains 8551, V and VII, colony types T3 and T4. See abstract; Table 1; Materials and Methods; and Results. Since Rodahl's LPS is obtained from *Neisseria gonorrhoeae,* it is viewed as necessarily having the conserved portion with the structure, GlcNAc-Hep2-phosphoethanolamine-KDO_2-LipidA. Although Rodahl *et al.* are silent about the elicitation of a cross reactive immune response against heterologous strains of *Neisseria gonorrhoeae, Neisseria meningitidis,* or against one or more bacteria selected from the group consisting of *Haemophilus influenzae, nonptypeable Haemophilus influenzae, Haemophilus ducreyi, Helicobacter pylori, Salmonella typhimurium, Salmonella minnesota,* and *Moraxella catarrhalis,* induction of such a response is viewed as an inherent property inseparable from the prior art gonococcal LPS conjugate. Since the Office does not have the facilities for examining and comparing Applicants' antigenic conjugate with that of Rodahl's immunogenic conjugate, the

burden is on Applicants to show a novel or an unobvious difference between the antigenic conjugate used in the instant invention and the prior art conjugate, i.e., to show that the prior art antigenic conjugate does not possess the same material and functional characteristics of the instantly recited antigenic conjugate. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *In re Fitzerald et al.*, 05 USPQ 594.

Claims 23-25 are anticipated by Rodahl *et al.*

24) Claims 20-25 are rejected under § 102(b) as being anticipated by Seid *et al.* (*In*: *The Pathogenic Neisseriae*: Proceedings of the Fourth International Symposium. GK Schoolnik *et al.* (Ed). American Society for Microbiology, Washington D.C. pages 309-315, 1985).

Seid *et al.* taught an immunogenic conjugate comprising a gonococcal pilus carrier protein conjugated to an isolated and deacylated lipopolysaccharide (LPS) from *Neisseria gonorrhoeae* via the compound N-hydroxysuccinimide ester. The antiserum elicited by a composition comprising the conjugate reacted (i.e., cross reacted) with homologous and heterologous 7134 and F62 strains of *Neisseria gonorrhoeae*. See abstract; Materials and Methods; Results; and Tables 2-4. Since Seid's LPS is obtained from *Neisseria gonorrhoeae,* it is viewed as necessarily having the conserved portion with the structure, GlcNAc-Hep2-phosphoethanolamine-KDO_2-LipidA. Although Seid *et al.* are silent about the elicitation of a cross reactive immune response against heterologous strains of *Neisseria gonorrhoeae, Neisseria meningitidis,* or against one or more bacteria selected from the group consisting of *Haemophilus influenzae, nonptypeable Haemophilus influenzae, Haemophilus ducreyi, Helicobacter pylori, Salmonella typhimurium, Salmonella minnesota,* and *Moraxella catarrhalis*, induction of such a response is viewed as an inherent property inseparable from the prior art gonococcal LPS conjugate. Since the Office does not have the facilities for examining and comparing Applicants' antigenic conjugate with that of Seid's antigenic conjugate, the burden is on Applicants to show a novel or an unobvious difference between the antigenic conjugate used in the instant invention and the prior art antigenic conjugate, i.e., to show that the prior art antigenic conjugate does not possess the same material and functional characteristics of the instantly recited antigenic conjugate. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *In re Fitzerald et al.*, 05 USPQ 594.

Claims 20-25 are anticipated by Seid *et al.*

Objection(s)

25) Claim 24 and those dependent therefrom are objected to for including the non-elected LPS species from *Neisseria meningitidis*.

Remarks

26) Claims 20-25 stand rejected.

27) Applicants' amendments necessitated the new ground(s) of rejection presented in this Office action. **THIS ACTION IS MADE FINAL.** Applicants are reminded of the extension of time policy as set forth in 37 C.F.R 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 C.F.R 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

28) Papers related to this application may be submitted to Group 1600, AU 1645 by facsimile transmission. Papers should be transmitted via the PTO Fax Center, which receives transmissions 24 hours a day and 7 days a week. The transmission of such papers by facsimile must conform with the notice published in the Official Gazette, 1096 OG 30, November 15, 1989. The Fax number for submission of amendments, responses or papers is (703) 872-9306.

29) Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAG or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.Mov. Should you have questions on access to the Private PAA system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

30) Any inquiry concerning this communication or earlier communications from the Examiner should be directed to S. Devi, Ph.D., whose telephone number is (571) 272-0854. A message may be left on the Examiner's voice mail system. The Examiner can normally be reached on Monday to Friday from 7.15

a.m. to 4.15 p.m. except one day each bi-week, which would be disclosed on the Examiner's voice mail system.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Lynette Smith, can be reached on (571) 272-0864.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1600.

April, 2005

SD.
S. DEVI, PH.D.
PRIMARY EXAMINER